AS/NZS 3000:2018
Swimming & Spa Pools Explained

THE STANDARD

AS/NZS 3000:2018 Electrical installations (also known as the "Wiring Rules"), contains essential electrical requirements for swimming pools and spas. The Wiring Rules is legislated for compliance in all Australian States/Territories and therefore is mandatory. Swimming pool and spa builders including pool fence installers need to be aware of the additional electrical works required by the wiring rules.

The LAW – Licensed Electrical Work:

Where electrical equipment and conductive metalwork is required to be equipotentially bonded, this work is legally required to be performed by licensed electrical persons. The connection and installation of earthing cables and their protective enclosures is defined under state legislation as electrical work.

What is Equipotential Bonding?

AS/NZS 3000 requires swimming pools and spa pool electrical equipment and the associated wiring to conform to essential earthing requirements. This is termed equipotential bonding. The bonding of all extraneous and exposed conductive materials within a defined area (zone) of the pool installation will protect the swimmer from the effects of electricity under fault conditions.

Equipotential bonding is achieved by the connection of conductive materials to an earth conductor which is terminated to the earthing bar of the electrical switchboard or where applicable, the earthing termination of a socket outlet for the pool equipment. Electrical equipment such as pumps, heaters, lights and cables can fail and introduce electricity into conductive building materials within the pool area. An adjoining properties electrical faults can also introduce ground borne voltage into a pool area.

Equipotential bonding is the best way to keep dangerous voltages from wet areas. The same methods are also applied to conductive building surfaces in bathrooms.

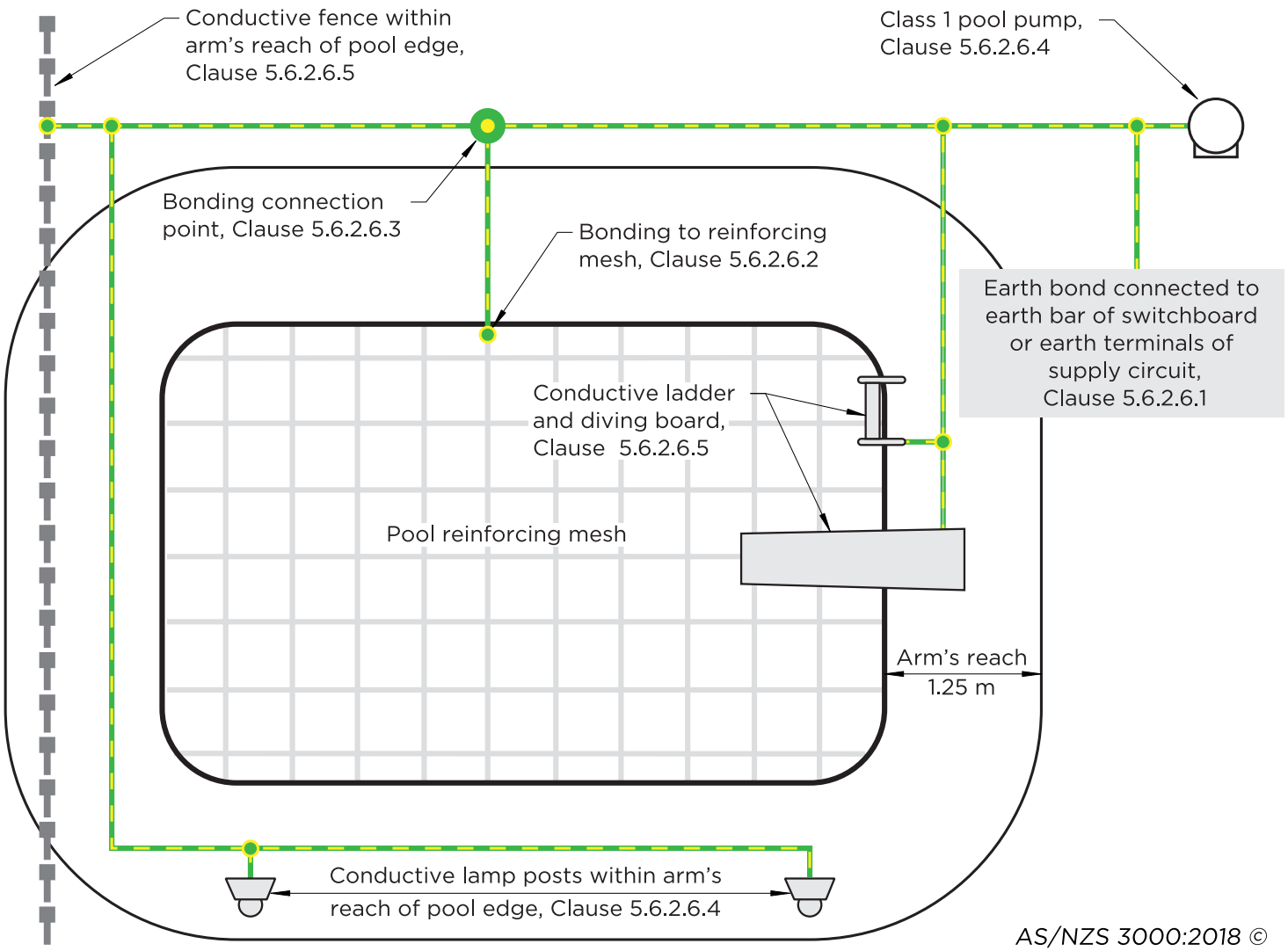
What needs to be Bonded:

1. Reinforcing metal of a concrete pool shell and pool surrounds.
   Note: Only one bonding point is required when all the steel reinforcement is wire tied as one complete conductive system
2. Conductive metalwork as a support system for plastic lined or fibreglass pools
3. Exposed conductive parts of any low voltage electrical equipment including electrical equipment in contact with the pool water

4. Conductive ladders and diving boards
5. Conductive fencing within arm's reach (1.25mm) of the pool edge
6. Conductive building structures within arm's reach of the pool edge
7. Any conductive metal greater than 100mm in any dimension within arm's reach of the pool edge e.g. conductive pool fencing systems and glass panel supporting spigots

Figure 5.9

Example of Bonding Arrangement for Pools and Spas



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An equipotential bonding conductor connection point shall be:

1. Located in a position that will be accessible with space for connections to be made after pool construction (e.g. located adjacent to the pool equipment)
2. Identified by marking of its location on the switchboard at which the circuits supplying the pool or spa originate, or other permanent location
3. Appropriately designed and constructed PLUS protected against mechanical damage and damage due to corrosion

Pool Equipment Location

The wiring rules prescribe two measured zones around the perimeter of a pool. The innermost zone (Zone 1) limits the type of electrical equipment in this specific area. The second outer zone (Zone 2) allows non essential pool equipment to meet lesser electrical specifications.

Zones are essential to be established during the planning stage as electrical overhead power lines, their connection points, switchboards, metering enclosures and solar equipment are prohibited from being located within these zones.

Commercial and medical pools require larger and specialist equipment and therefore involve high level electrical engineering assessments that require additional earthing methods to achieve the same low risk design.

Avoid Expensive Cost Overruns

Discuss the electrical work with your Electrical Contractor:

1. Plan ahead
2. Engage with your Electrical Contractor early in the design/planning process
3. Provide your Electrical Contractor with site plans and equipment specifications
4. If possible, eliminate by alternative design any conductive metal within arm's reach of the pool edge

Please note that this is general guidance of the intent of the Wiring Rules. State regulators may have variances to this advice. You are strongly advised to engage with a Licensed Electrical Contractor (Master Electrician) to seek the best possible outcome.

MASTER ELECTRICIANS AUSTRALIA

SPASA AUSTRALIA
SWIMMING POOL & SPA ASSOCIATION

For assistance or clarification contact
Master Electricians Australia.

masterelectricians.com.au | 1300 889 198